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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/801,940

03/16/2004

Kang-Hyun Back

U11.12-0161

2912

27367

7590

12/15/2005

WESTMAN CHAMPLIN & KELLY, P.A.
SUITE 1400 - INTERNATIONAL CENTRE
900 SECOND AVENUE SOUTH
MINNEAPOLIS, MN 55402-3319

EXAMINER

HEALY, BRIAN

ART UNIT

PAPER NUMBER

2883

DATE MAILED: 12/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/801,940

Applicant(s)

BAEK ET AL.

Examiner

Brian M. Healy

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 9-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10112005
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

102 REJECTION

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 9-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Forbes et. al., U.S.P. No. 6,898,362.

Forbes et. al., U.S.P. No. 6,898,362 teaches (Figs.1-7) an optical photonic crystal structure and method of making same comprising: a buried channel waveguide 660 formed on a support substrate 632,600 structure wherein the substrate contains plural photonic crystals of varying spherical shapes (including inverse opal structure) and can include multiple deposited substrate layers 640,630 and waveguide layers 662,688, which clearly, fully meets Applicant's claimed limitations.

ALLOWABLE SUBJECT MATTER

Claims 1-8 are allowable over the teachings of Forbes et. al., U.S.P. No. 6,898,362 and all other cited references. Nothing in the cited references teaches or suggests the claimed method of obtaining single spheres for use in making self assembled opal structure comprising: obtaining a plurality of spherical particles; placing the spherical particles in a centrifuge; spinning the centrifuge to apply centrifugal force to the spherical particles; and separating single spheres from doublets using a relative difference in sedimentation velocity in response to centrifugal force. These limitations are recited in Claim 1. Dependent claims 2-5 includes the limitations of claim 1 along with additional limitations (See dependent claims for these specific additional limitations.).

In addition, neither Forbes et. al. 362' or any of the other references of record teaches or suggests the claimed method of making a three-dimensional photonic crystal comprising: providing a plurality of spheres carried in a suspension and drawing a substrate through a meniscus formed in the suspension and at a declination angle relative to the meniscus. These limitations are recited in Claim 6. Dependent claims 7 and 8 includes the limitations of claim 6 along with other additional limitations (See dependent claims for these specific additional limitations.

A copy of PTO-1449 will be included in this office action.

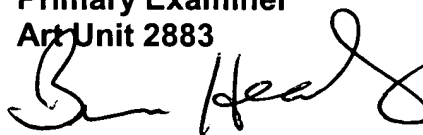
The following prior art is made of record by the Examiner as representing pertinent prior art: Fu et. al., U.S.P. No. 6,863,847 (Figs.1-3), Aert et. al., U.S.P. No. 6,800,709 (Figs.1-10), Norris et. al., U.S.P. No. 6,858,079 (Figs.1-12) and Amos et. al., U.S.P. No. 6,797,057 (Figs.1-7).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian M. Healy whose telephone number is (571)272-2347. The examiner can normally be reached on Compressed schedule Tues.-Thurs. 7AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571)272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian M. Healy
Primary Examiner
Art Unit 2883

A handwritten signature in black ink, appearing to read 'Brian M. Healy', is written over the printed name and title.

Brian Healy
Primary Examiner